*Sarah Williams**

Research on bilingualism and its relevance for interpreting

Introduction

Although simultaneous interpreting has been in existence since World War II, it is only in the last few decades that research has begun to emerge in this area. Much of this research has been carried out by practitioners themselves and tends to reflect an immediate concern with quality of performance and training. The research areas covered tend to focus on consciously accessible issues and on products rather than processes and can roughly be assigned to three major categories: i) the priority of meaning rather than form, with research on translatability, text type, time lag (eg Seleskovitch and the Paris school); ii) reference and coherence, with research on fidelity and precision (eg various textlinguistic models); iii) pragmatics in interpreting, with research on the interpreter's role, the degree of adaptation to audience, etc. (eg Skopos theory). Although some earlier studies have been carried out on performance aspects of simultaneous interpreting (eg by Barik, Gerver, Goldman-Eisler, Kopczynski, Alexieva), it is really only recently that empirical research on nonconsciously accessible issues and on processes has begun to emerge. This is comprised largely of experimental research on hemispheric specialization in interpreting (eg the Trieste group, including Darò, Fabbro, Gran, Spiller-Bosatra, also by Lambert), with some work beginning to be carried out on general language processing (see Lambert & Moser-Mercer, 1994, for an overview).

There is however still a general lack of empirical corpus-based studies and, surprisingly, very little on issues dealing with the psycholinguistic processes involved in the functional juxtaposition of the interpreter's two or more languages. Issues such as differences in the

* *Sarah Williams*
Centre for Research on Bilingualism
Stockholm University
S-10691 Stockholm

processing of the interpreter's two (or more) languages and the occurrence of ungrammatical utterances could be fruitfully studied within a framework of bilingualism and second language (SL) research. These issues have been widely neglected in research on interpreting (see Williams, 1994), where the interpreter's languages are often referred to predominantly in terms of source and target language, and the few error analysis studies that exist (such as for example Barik, 1971, Altman, 1994) lack a theoretical framework.

Bilingualism - a definition

Within the field of research on bilingualism, a bilingual is generally defined as a person who is able to use two languages, for some or all of the skills of comprehension and production. The technical term for a person who is able to use three or more languages is "polyglot" although polyglots are often also included in references to "bilinguals". Throughout this paper, I shall include polyglots in the term "bilinguals".

There are various kinds of bilingualism, which raises certain problematic issues as regards definitions. One problem is that of whether a person's language is a native language (L1) or a second language (L2). L1 is traditionally defined as a language which is learnt before a critical period. This critical period used to be regarded as being at around puberty, but recent research shows firstly, that there are different critical periods for different modules of language (eg phonetic, semantic, syntactic), and secondly, that at least some of these critical periods take place much earlier than puberty (see Johnson & Newport, 1989). Bilinguals are often referred to in the literature simply as either *early bilinguals*, i.e. those who learnt their languages during early childhood, or *late bilinguals*, i e. those who learnt one of their languages after early childhood. Early bilinguals are generally regarded as being native speakers of both of their languages, while late bilinguals are not; in cases where late bilinguals have a high level of proficiency in their L2s, they are referred to as "near-native speakers". The issue is, however, somewhat more complicated; while early bilinguals *appear* to have native-like proficiency in both of their languages, research has shown that they do in fact differ from monolinguals in certain respects, which raises the question as to whether bilinguals have two L1s, two L2s, or

something else (for a discussion see McLaughlin, 1984). Generally speaking, however, when those working in the field of interpreting refer to someone as being a "true" bilingual, it is likely that they are referring to an *early bilingual*. Determining whether a person's language is L1 or L2 (in as far as this is possible, given the problems outlined above) is important in that it has been shown in the literature that different perception and production strategies are used for L1 and L2 (see Williams, 1994). This has obvious consequences for research on interpreting.

Research on bilingualism is complex and cuts across several disciplines, including linguistics, psycholinguistics, sociolinguistics, neurolinguistics, cognition. In this paper I will look briefly at two areas, namely *cognitive research in bilingualism*, concerning the relationship of two or more languages to each other within a framework of shared storage and processing capacity, and *second language (SL) research*, concerning the differences in the nature and use of L1 and L2 systems, and the effect these can have on each other.

Cognitive research in bilingualism

Cognitive research in bilingualism looks at the organisation of two languages within the brain and their relationship to each other within a framework of shared processing capacity. Relevant issues for interpreting from cognitive research on bilingualism are storage of concepts in two (or more) languages (shared or separate, lexical or conceptual representations), access (lexical retrieval, priming effects, "moment of translation") and separation of the two languages (code-switching, input/output switch models, language suppression and activation).

A key question from cognitive research on bilingualism which has direct relevance for interpreting is how a bilingual can keep his/her languages separate. Various hypotheses and models have been put forward (see Albert & Obler, 1978 and Romaine, 1989, for an overview). Earlier researchers posited a switch mechanism which would allow the bilingual to switch from one language to another (Penfield & Roberts, 1959). This was later refined by Macnamara (1967), who pointed out that there must be both an input and an output switch, since bilinguals can speak in one language while comprehending another. Macnamara also suggested that the output switch is under conscious

control, while the input switch is data-driven, i.e. not under conscious control but triggered by the input. Paradis (1977:91) however, put forward the idea that the capacity to switch need not be a faculty peculiar to the polyglot, suggesting that there is no need to postulate a particular switch mechanism "other than that which every speaker already possesses and which allows him, among other things, to switch registers within the same language". During the 1970s and 1980s, various research was carried out to gain more insight into this issue. Albert & Obler (1978) were among the first to dismiss the idea of a single switch mechanism in favour of a continually operating monitor system, in which choices of language, word, phrase etc are continually being tested against other competing forms. This has paved the way for later models of activation and suppression, such as that of Green (1986), who proposes a model in which a bilingual's languages can be in one of these possible states: selected, activated or dormant. Here, separation of the languages is thought to be an issue of successful suppression of the non-selected language(s).

If one accepts the existence of a mechanism which suppresses competing items, both in monolinguals (as regards register) and bilinguals (as regards language and presumably also register), then the situation as regards interpreters is necessarily more complicated; presumably, due to the simultaneity of perception and production, they must simultaneously suppress different modules in each language, such that the production module is suppressed in the incoming language, while the perception module is partly suppressed in the outgoing language. However, the perception model in the outgoing language cannot be wholly suppressed, since the interpreter's output serves at the same time as an audial control which modifies further output (Spiller & Bosatra, 1989). This means that interpreters have several additional burdens of suppression, which obviously must take its toll on processing capacity (see Fig. 1 below).

Monolingual:	register
Bilingual:	register + language
Interpreter:	register + language + production in incoming language + some of perception in outgoing language (some still needed for audial control)

Figure 1: Areas of suppression in monolinguals, bilinguals and simultaneous interpreters

This may explain why not all fluent bilinguals can be good interpreters (i.e. it may be possible to be fluent in several languages and thus be able to cope with dual suppression, but not with triple suppression or more). A higher level of modality control, then, would be what distinguishes interpreters from bilinguals (cf Dillinger, 1994). Indeed, some of the problems encountered by some interpreting students are, for example, lapsing into a simplified register when doing simultaneous interpreting, or failing to monitor their output, both of which would indicate a problem with suppression. Another (at present tentative) example of how such a model of activation and suppression may be of help is the problem of anomalous prosody in simultaneous interpreting. It has been observed that anomalous stress in interpreters' output may mirror or be triggered by salient but semantically unrelated stress in the input (Williams, 1995a). If this is the case, then this may be a question of mixing incoming signals such that it is the speaker's input, and not the interpreter's own production, which is acting as audial control for the interpreter's following output. This may then be a case of incorrect level of perceptual suppression of the output language (i.e. if too much of it has been suppressed, then the speaker's input will dominate, thus taking over the function of audial control).

In order to gain a fuller picture of the processes involved in interpreting, however, this type of neurolinguistic model needs to be compatible with psycholinguistic ones (such as for example Levelt, 1989;

de Bot, 1992). However, even a combination of neurolinguistic models of language selection and psycholinguistic models dealing with the processing of different levels of speech are not sufficient to give a full account of the processes involved in simultaneous interpreting; the status of the interpreter's two languages in relation to each other (i.e. whether they are L1 or L2) must also be taken into account (Williams, 1995b). This is where second language research can make an important contribution to interpreting research.

Second language research

Early research in second language acquisition (SLA) initially had a very applied focus, being concerned primarily with attempting to solve the problem of how foreign languages could best be taught. Its focus soon shifted, however, from how languages are taught to how they are learnt, and researchers attempted to chart common traits in the learning of specific languages, and languages in general. The scope of SLA research has expanded over the years and is now concerned with not just the *learning* of L2 but also with the *use* of L2 and the *processing mechanisms* involved, and is now sometimes also referred to as second language (SL) research rather than exclusively second language *acquisition* SLA) research. This is also reflected in the fact that research interest has extended from a focus on *beginners* and *intermediate learners* to include *advanced learners* and *near-native speakers*. It is this which make the issues dealt with in SL research today particularly relevant for the study of interpreting.

Although interpreters are obviously highly proficient in their languages, many have learnt their second and third languages after early childhood and must consequently be regarded as late bilinguals. Regardless of the level of proficiency in a second language, there is evidence to suggest that even in the case of near-native speakers, L1 and L2 are acquired, stored and used differently. There is also growing evidence to suggest differences in the L1s of early and late bilinguals (Albert & Obler, 1978; Ellis, 1994).

Relevant issues from SLA research include differences in the L1s and L2s of early and late bilinguals, crosslinguistic influence, markedness and transfer, consciousness and attention, level of automaticity and control in L1 and L2 processing, performance variability and the effects of density, noise, stress and tiredness on comprehension (for an over-

view of recent research see Ellis, 1994 and Sharwood-Smith, 1994). Research interest has expanded to include more studies on perception and comprehension (cf Bates & MacWhinney 1989), and is also concerned now with not only the crosslinguistic influence of L1 on L2, but also the influence of L2 on L1 (eg Seliger & Vago, 1991).

A key area from SLA research which has direct relevance for interpreting is that of variability in language. Initial work in this area (Tarone, 1982, 1983, 1985) concentrated on variability as a step taken by the learner towards a more advanced form of interlanguage, in which an existing form or function varies with a new one. Variability was initially studied in connection with different tasks and different levels of attention to form, and viewed within a *sociolinguistic* framework, i.e. focused largely on the acquisition and use of different registers. Subsequent work has taken up the issue of *psycholinguistic* variability, i.e. variability in performance (both perception and production) under conditions of stress or limited processing capacity. Here, the concept of variability is used as a new approach towards gaining insights into interlanguage instability, i.e. the tendency of even advanced interlanguage to sometimes revert to an earlier stage of interlanguage under stress (cf Selinker's 1972 *backsliding*). Bialystock & Sharwood-Smith (1985) distinguish between competence, i.e the L2 speaker's underlying system, and *control*, i.e. the L2 speaker's degree of access to the underlying system, and explain such phenomena as being a result of *control variability*. Control variability has consequences for the use of, among other things, register, grammatical features and automaticity, and is thus relevant for interpreting.

Language attrition research

Variability in language processing under conditions of stress has also now begun to be taken up within the area of language attrition research. Up until recently, most studies of language regression have been dealt with within a sociolinguistic or a pathological framework (eg van Els, 1986; Sharwood Smith & van Buren, 1991; for two important collections, see Weltens et al., 1986, Seliger & Vago, 1991). However, one type of regression categorized by Hyltenstam & Viberg (1993) is *temporary regression* and concerns the reduced performance of normal subjects due to noise, stress, etc. It is this category which is most relevant for work on interpreting. Temporary regression in monolinguals

has been dealt with in terms of studies of performance errors, slips of the tongue, ear, eye, hand: for a review see Garman, 1990). In bilinguals it has been dealt with almost exclusively in terms of variability in interlanguage i.e. variability in the language learner during the period of acquisition, (eg Tarone, 1982, 1983; Bialystock & Sharwood Smith, 1985; for reviews see Ellis, 1994 and Sharwood Smith 1994), and appears to have been dealt with very little as a phenomenon which occurs in proficient bilinguals (see Hyltenstam & Viberg, 1993). The study of simultaneous interpreting could make a great contribution to this relatively unexplored area, as it allows for the analysis of non-pathological performance errors in the L1 and L2 of fluent bilinguals.

Direction of interpreting

A central but unresolved issue in simultaneous interpreting today concerns the direction of interpreting. Although the economic limitations of many smaller conferences dictate that the interpreters interpret in both directions, it is often general policy for many larger organizations (such as for example the European Community) for interpreters to interpret only into their native language (L1), a fact which is reflected in the focus on interpreting into the L1 which is found in many interpreter training schemes. The policy of interpreting from L2 into L1, however, appears to be based largely on tradition rather than on empirical evidence that this does in fact result in a better interpretation. The arguments usually given for the supremacy of L2 to L1 interpretation is that since production can suffer under stress, the language which is most resilient (in most cases L1) is the one which should be used to interpret into. As yet, however, there appears to have been little attention paid to the fact that perception and comprehension also suffer under stress. The role of comprehension is vital in interpreting. If a message has been understood, it can usually be rendered in some way; if it has not been understood, it cannot be rendered.

Second language research shows that not only production, but also perception and comprehension is weaker in L2. In general, it can be said that there is a wider range of processing strategies at work in L1, which permits optimal use of the redundancies of a language (Albert & Obler, 1978). This means that an L1 listener's perception and comprehension of an incoming message will be less distorted by noise and stress than that of an L2 listener. In addition to this, an L1 listener will

nearly always be more familiar with a wider range of regional accents and dialects than will an L2 speaker, which also facilitates better comprehension. Macnamara (1970) has shown that complex syntactic structures in a nondominant language, even when they are known by the individuals, can result in mistaken comprehension. More recent research has shown that speakers of different languages use language-specific cues in sentence processing (MacWhinney, Bates & Kliegel (1984) and that there is a strong tendency for bilinguals to use L1 strategies (in terms of the relative importance given to cues such as agreement, animacy, and word order) in processing L2 sentences (Bates & MacWhinney, 1981). Although this is less prominent in more advanced L2 speakers (McDonald, 1984, from Romaine, 1989), the fact that conditions of stress can induce an element of temporary regression into even an advanced L2 (see above), means that in principle, interpreters may sometimes be using L1 processing strategies to process L2 input. In addition to this, there is evidence that memory, also vital for interpreting, is more limited in L2 than in L1 (Cook, 1979; Mägiste, 1982). Although it has been observed that nonprofessionals have more difficulty translating from their weaker to their dominant language (Barik, 1974), and that student interpreters actually prefer in some cases to interpret from L1 to L2 (Gile, 1990), as yet there does not appear to be any empirical research on this concerning professional interpreters.

Observations can however be made from practice and from the literature. Interpreting from L2 to L1 can result in more superfluous formulations and selfcorrections than interpreting from L1 to L2, possibly because of some perfectionist mechanism in the interpreter that is triggered by the wider range of nuances at his/her disposal in L1. Although there are generally more grammatical errors made when interpreting into L2, grammatical errors do also occur when interpreting into L1 (Mackintosh, 1985). Although there appear to be fewer syntactic errors when interpreting into L1, there may well be more semantic errors in comparison to the source text, given that perception and comprehension is in L2 and may consequently suffer more under stress. In Toury's terms, then, it is likely that interpreting from L1 into L2 gives a higher degree of adequacy, i.e. fidelity to the source text, while interpreting from L2 into L1 gives a higher degree of acceptability, i.e. conformity to the standard language. Empirical research,

however, is needed to document the phenomena occurring in both directions of interpreting and to investigate the factors involved.

References

Albert. L.M. & Obler, L.K. (1978): *The Bilingual Brain.* New York: Academic Press.

Altman. J. (1994): "Error analysis in the teaching of simultaneous interpretation: a pilot study". In: S. Lambert & B. Moser-Mercer eds), *Bridging the Gap. Empirical research in simultaneous interpretation.* Amsterdam/Philadelphia: John Benjamins.

Barik, H. (1971): "A description of various types of omissions, additions and errors of translation encountered in simultaneous interpretation". In: *Meta*. 16/4, 199-210.

Bates, E. & MacWhinney, B. (1981): "Second language acquisition from a functionalist perspective: pragmatic, semantic and perceptual strategies". In: H. Winitz (ed), *Native language and foreign language acquisition.* New York: New York Academy of Science.

Bates, E. & MacWhinney, B. (1989): "Functionalism and the Competition Model". In: B. MacWhinney & E. Bates (eds), *The crosslinguistic study of sentence processing.* Cambridge: Cambridge University Press.

Bialystock, E. & Sharwood Smith M. (1985): "Interlanguage is not a state of mind: an evaluation of the construct for second language acquisition". In: *Applied Linguistics* 6, 101-7.

de Bot, K. (1992): "A bilingual production model: Levelt's "Speaking" model adapted". In: *Applied Linguistics* 13, 1-24.

Dillinger, M. (1994): "Comprehension during interpreting: What do interpreters know that bilinguals don't?". ln: S. Lambert & B. Moser-Mercer (eds), *Empirical research on interpretation.* Amsterdam: John Benjamins.

Ellis, R. (1994): *The study of second language acquisition.* Oxford: Oxford University Press.

Garman, M. (1990): *Psycholinguistics.* Cambridge: Cambridge University Press.

Green, D.W. (1986): "Control activation and resource: a framework and a model for the control of speech in bilinguals". In: *Brain and Language* 27, 210-23.

Hyltenstam, K. & Viberg, Å. (1993): "Linguistic progression and regression: an introduction" In: K. Hyltenstam & Viberg, Å. (eds), *Progression and regression in language.* Cambridge: Cambridge University Press.

Johnson. J.S. & Newport, E.L (1989): "Critical period effects in second language learning: the influence of maturational state on the acquisition of English as a second language". In: *Cognitive Psychology* 21, 60-99.

Lambert, S. & Moser-Mercer, B. (1994): *Bridging the Gap. Empirical research in simultaneous interpretation.* Amsterdam/Philadelphia John Benjamins.

Levelt, W. (1981): *Speaking: from intention to articulation*. Cambridge: Cambridge University Press.

Mackintosh, J. (1985): “The Kintsch and van Dijk model of discourse comprehension and production applied to the interpretation process”.In: *Meta* XXX, 1, 37-43.

Macnamara, J. (1967): “The bilingual’s linguistic performance: a psychological overview”. In: *Journal of Social Issues* 23, 59-77.

Macnamara, J. (1970): “Bilingualism and thought”. In: Alatis, J. (ed), *Bilingualism and language contact.* Washington, DC: Georgetown University Press.

MacWhinney, B., Bates, E. & Kliegl. R. (1984): “Cue validity and sentence interpretation in English, German and Italian”. In: *Journal of Verbal Learning and Verbal Behavior* 23, 127-50.

Mägiste, E. (1982): *Speed and memory performance in bilinguals.* Doctoral dissertation, Dept. of Psychology, Stockholm University.

McDonald, J. (1984): *The mapping of semantic and syntactic processing cues by first and second language learners of English, Dutch and German*, PhD thesis. Pittsburgh, Pa: Carnegie-Mellon University.

McLaughlin, B. (1984): *Second-Language Acquisition in Childhood: Volume 1. Preschool children*. Second Edition. Hillsdale, New Jersey: Lawrence Erlbaum Associates.

Paradis, M. (1977): “Bilingualism and aphasia”. In: H. Whitaker & H. Whitaker (eds). *Studies in neurolinguistics. Volume 3*, New York: Academic Press.

Paradis, M. (1994): “Towards a neurolinguistic theory of simultaneous translation: the framework”. In: *International Journal of Psycholinguistics* 1013, 319-335.

Penfield W. & Roberts, L. (19599: *Speech and brain mechanisms.* Princeton: Princeton University Press.

Romaine, S. (1989): *Bilingualism*. Oxford: Blackwell.

Seliger, H. W. & Vago, R. M. (1991): *First language attrition*. Cambridge: Cambridge University Press.

Selinker, L. (1972): “Interlanguage”. In: *International Review of Applied Linguistics* 10, 209-30.

Sharwood Smith, M. (1994): *Second language learning, theoretical foundations*, London & New York. Longman.

Sharwood-Smith. M. & van Buren, P. (1991): “First language attrition and the parameter setting model”. In: H. W. Seliger & R. M. Vago (eds), *First language attrition*. Cambridge: Cambridge University Press.

Spiller, E. & Bosatra, A. (1989): “Role of the auditory sensory modality in simultaneous interpretation”. In: L. Gran & J. Dodds (eds), *The theoretical and practical aspects of teaching conference interpretation*. Udine: Campanotto Editore.

Tarone, E. (1982): “Systematicity and attention in interlanguage”. In: *Language Learning* 32, 69-82.

Tarone, E. (1983): “On the variability of interlanguage systems”. In: *Applied Linguistics* 4, 43-163.

Tarone, E. (1985): “Variability in interlanguage use: a study of style-shifting in morphology and syntax”. In: *Language learning* 35, 375-404.

van Els, T. “An overview of European research on language attrition”. In: Weltens, B., de Bot, K. & van Els, T. (eds), *Language attrition in progress.* Dortrecht: Foris.

Weltens, B., de Bot, K, & van Els, T. (eds) (1986): *Language attrition in progress*. Dordrecht: Foris.

Williams. S. (1994): “The application of SLA research to interpreting”. In: *Perspectives* 1 Copenhagen: Museum Tusculanum Press.

Williams, S. (1995a): “Observations on anomalous stress in interpreting”. In: *The Translator: Studies in intercultural communication*, Vol 1, No. 1, 1995.

Williams, S, (1995b): “Processes in Simultaneous Interpreting - PRINS”. HSFR Project proposal.